

PCT REQUEST

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| 0 | For receiving Office use only | |
| 0-1 | International Application No. | PCT/EP200 4 / 0 5 1 6 4 3 |
| 0-2 | International Filing Date | 28 JUL 2004 (28.07.2004) |
| 0-3 | Name of receiving Office and "PCT International Application" | EUROPEAN PATENT OFFICE PCT INTERNATIONAL APPLICATION |
| 0-4 | Form - PCT/RO/101 PCT Request | |
| 0-4-1 | Prepared Using | PCT Online Filing Version 3.50 (Build 0001.162) |
| 0-5 | Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty | |
| 0-6 | Receiving Office (specified by the applicant) | European Patent Office (EPO) (RO/EP) |
| 0-7 | Applicant's or agent's file reference | CML01134EP |
| I | Title of Invention | OFDM CHANNEL ESTIMATION AND TRACKING FOR MULTIPLE TRANSMIT ANTENNA |
| II | Applicant | |
| II-1 | This person is: | applicant only |
| II-2 | Applicant for | all designated States except US |
| II-4 | Name: | MOTOROLA INC |
| II-5 | Address: | 1303 E.Algonquin Road Schaumburg, Illinois 60196 United States of America |
| II-6 | State of nationality | US |
| II-7 | State of residence | US |
| II-8 | Telephone No. | 01256 790392 |
| II-9 | Facsimile No. | 01256 811319 |
| II-10 | e-mail | derek.mccormack@motorola.com |
| II-11 | Applicant's registration No. with the Office | 33341892 |

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| III-1 | Applicant and/or inventor | |
| III-1-1 | This person is: | applicant and inventor |
| III-1-2 | Applicant for | US only |
| III-1-4 | Name (LAST, First) | RIBEIRO DIAS, Alexandre |
| III-1-5 | Address: | 37 Avenue Reille 75014 Paris France |
| III-1-6 | State of nationality | FR |
| III-1-7 | State of residence | FR |
| III-2 | Applicant and/or inventor | |
| III-2-1 | This person is: | applicant and inventor |
| III-2-2 | Applicant for | US only |
| III-2-4 | Name (LAST, First) | DE COURVILLE, Marc |
| III-2-5 | Address: | 43 Rue du moulin vert 75014 Paris France |
| III-2-6 | State of nationality | FR |
| III-2-7 | State of residence | FR |
| III-3 | Applicant and/or inventor | |
| III-3-1 | This person is: | applicant and inventor |
| III-3-2 | Applicant for | US only |
| III-3-4 | Name (LAST, First) | MUCK, Markus |
| III-3-5 | Address: | 67-69 Rue de la colonie 75013 Paris France |
| III-3-6 | State of nationality | FR |
| III-3-7 | State of residence | FR |

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| IV-1 | Agent or common representative; or address for correspondence The person identified below is hereby/ has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: | agent |
| IV-1-1 | Name (LAST, First) | MCCORMACK,, Derek J. |
| IV-1-2 | Address: | Motorola European Intellectual Property Operations Midpoint, Alencon Link Basingstoke Hampshire RG21 7PL United Kingdom |
| IV-1-3 | Telephone No. | +44 1256 790 392 |
| IV-1-4 | Facsimile No. | +44 1256 811319 |
| IV-1-5 | e-mail | derek.mccormack@motorola.com |
| V | DESIGNATIONS | |
| V-1 | The filing of this request constitutes under Rule 4.9(a), the designation of all Contracting States bound by the PCT on the International filing date, for the grant of every kind of protection available and, where applicable, for the grant of both regional and national patents. | |
| VI-1 | Priority claim of earlier regional application | |
| VI-1-1 | Filing date | 28 August 2003 (28.08.2003) |
| VI-1-2 | Number | 03292120.7 |
| VI-1-3 | Regional Office | EP |
| VI-2 | Priority document request The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s): | VI-1 |
| VII-1 | International Searching Authority Chosen | European Patent Office (EPO) (ISA/EP) |

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| VIII | Declarations | Number of declarations | |
|--------|--|------------------------|--|
| VIII-1 | Declaration as to the identity of the inventor | 1 | |
| VIII-2 | Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent | 1 | |
| VIII-3 | Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application | 1 | |
| VIII-4 | Declaration of inventorship (only for the purposes of the designation of the United States of America) | 1 | |
| VIII-5 | Declaration as to non-prejudicial disclosures or exceptions to lack of novelty | - | |

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| VIII-1-1 | Declaration: Identity of the Inventor Declaration as to the identity of the inventor (Rules 4.17(i) and 51bis.1(a)(i)) | in relation to this international application |
| | Name (LAST, First) Address: | RIBEIRO DIAS, Alexandre of 37 Avenue Reille 75014 Paris France is the inventor of the subject matter for which protection is sought by way of this international application |
| | Name (LAST, First) Address: | DE COURVILLE, Marc of 43 Rue du moulin vert 75014 Paris France is the inventor of the subject matter for which protection is sought by way of this international application |
| | Name (LAST, First) Address: | MUCK, Markus of 67-69 Rue de la colonie 75013 Paris France is the inventor of the subject matter for which protection is sought by way of this international application |
| | This declaration is made for the purposes of: | all designations except the designation of the United States of America |

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| VIII-2-1 | Declaration: Entitlement to apply for and be granted a patent Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51bis.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate: Name (LAST, First) | in relation to this international application MOTOROLA INC is entitled to apply for and be granted a patent by virtue of the following: |
| VIII-2-1(i) | | MOTOROLA INC is entitled as employer of the inventor, RIBEIRO DIAS, Alexandre |
| VIII-2-1(i) | | MOTOROLA INC is entitled as employer of the inventor, DE COURVILLE, Marc |
| VIII-2-1(i) | | MOTOROLA INC is entitled as employer of the inventor, MUCK, Markus |
| VIII-2-1(i x) | This declaration is made for the purposes of: | all designations except the designation of the United States of America |

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| VIII-3-1 | Declaration: Entitlement to claim priority Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application specified below, where the applicant is not the applicant who filed the earlier application or where the applicant's name has changed since the filing of the earlier application (Rules 4.17(iii) and 51bis.1(a)(iii)) Name: | in relation to this international application MOTOROLA INC is entitled to claim priority of earlier application No. 03292120.7 by virtue of the following: |
| VIII-3-1(i) | | MOTOROLA INC is entitled as employer of the inventor, RIBEIRO DIAS, Alexandre |
| VIII-3-1(i) | | MOTOROLA INC is entitled as employer of the inventor, DE COURVILLE, Marc |
| VIII-3-1(i) | | MOTOROLA INC is entitled as employer of the inventor, MUCK, Markus |
| VIII-3-1(x) | This declaration is made for the purposes of: | all designations |

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| VIII-4-1 | <p>Declaration: Inventorship (only for the purposes of the designation of the United States of America) Declaration of Inventorship (Rules 4.17(iv) and 51bis.1(a)(iv)) for the purposes of the designation of the United States of America:</p> | <p>I hereby declare that I believe I am the original, first and sole (if only one inventor is listed below) or joint (if more than one inventor is listed below) inventor of the subject matter which is claimed and for which a patent is sought.</p> <p>This declaration is directed to the international application of which it forms a part (if filing declaration with application).</p> <p>I hereby declare that my residence, mailing address, and citizenship are as stated next to my name.</p> <p>I hereby state that I have reviewed and understand the contents of the above-identified international application, including the claims of said application. I have identified in the request of said application, in compliance with PCT Rule 4.10, any claim to foreign priority, and I have identified below, under the heading "Prior Applications", by application number, country or Member of the World Trade Organization, day, month, and year of filing, any application for a patent or inventor's certificate filed in a country other than the United States of America, including any PCT international application designating at least one country other than the United States of America, having a filing date before that of the application on which foreign priority is claimed.</p> |
| VIII-4-1-1 | Prior applications: | 03292120.7, EP, 28 August 2003 (28.08.2003) |

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| | | <p>I hereby acknowledge the duty to disclose information that is known by me to be material to patentability as defined by 37 C.F.R. § 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the PCT international filing date of the continuation-in-part application.</p> <p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.</p> |
| VIII-4-1-1-1 | Name (LAST, First) | RIBEIRO DIAS, Alexandre |
| VIII-4-1-1-2 | Residence: (city and either US State, if applicable, or country) | Paris, France |
| VIII-4-1-1-3 | Mailing address: | 37 Avenue Reille F-75014 Paris France |
| VIII-4-1-1-4 | Citizenship: | FR |
| VIII-4-1-1-5 | Inventor's Signature: (if not contained in the request, or if declaration is corrected or added under Rule 26ter after the filing of the international application. The signature must be that of the inventor, not that of the agent) | /Alexandre Ribeiro Dias/ |
| VIII-4-1-1-6 | Date: (of signature which is not contained in the request, or of the declaration that is corrected or added under Rule 26ter after the filing of the international application) | 28 July 2004 (28.07.2004) |

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| VIII-4-1-2-1 | Name (LAST, First) | DE COURVILLE, Marc |
| VIII-4-1-2-2 | Residence: (city and either US State, if applicable, or country) | Paris, France |
| VIII-4-1-2-3 | Mailing address: | 43 Rue du moulin vert F-75014 Paris France |
| VIII-4-1-2-4 | Citizenship: | FR |
| VIII-4-1-2-5 | Inventor's Signature: (if not contained in the request, or if declaration is corrected or added under Rule 26ter after the filing of the International application. The signature must be that of the inventor, not that of the agent) | /Marc De Courville/ |
| VIII-4-1-2-6 | Date (of signature which is not contained in the request, or of the declaration that is corrected or added under Rule 26ter after the filing of the international application) | 28 July 2004 (28.07.2004) |
| VIII-4-1-3-1 | Name (LAST, First) | MUCK, Markus |
| VIII-4-1-3-2 | Residence: (city and either US State, if applicable, or country) | Paris, France |
| VIII-4-1-3-3 | Mailing address: | 67-69 Rue de la colonie F-75013 Paris France |
| VIII-4-1-3-4 | Citizenship: | FR |
| VIII-4-1-3-5 | Inventor's Signature: (if not contained in the request, or if declaration is corrected or added under Rule 26ter after the filing of the international application. The signature must be that of the inventor, not that of the agent) | /Markus Muck/ |
| VIII-4-1-3-6 | Date (of signature which is not contained in the request, or of the declaration that is corrected or added under Rule 26ter after the filing of the international application) | 28 July 2004 (28.07.2004) |

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| IX | Check list | number of sheets | electronic file(s) attached |
|-------|--|-----------------------------------|------------------------------------|
| IX-1 | Request (including declaration sheets) | 11 | ✓ |
| IX-2 | Description | 16 | ✓ |
| IX-3 | Claims | 4 | ✓ |
| IX-4 | Abstract | 1 | ✓ |
| IX-5 | Drawings | 2 | ✓ |
| IX-7 | TOTAL | 34 | |
| | Accompanying Items | paper document(s) attached | electronic file(s) attached |
| IX-8 | Fee calculation sheet | - | ✓ |
| IX-17 | PCT-SAFE physical media | - | - |
| IX-19 | Figure of the drawings which should accompany the abstract | 1 | |
| IX-20 | Language of filing of the international application | English | |
| X-1 | Signature of applicant, agent or common representative | /Derek J McCormack/ | |
| X-1-1 | Name (LAST, First) | McCORMACK,, Derek J. | |
| X-1-2 | Name of signatory | | |
| X-1-3 | Capacity | | |

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| 10-1 | Date of actual receipt of the purported international application | 28 JUL 2004 | (28. 07. 2004) |
| 10-2 | Drawings: | ✓ | |
| 10-2-1 | Received | | |
| 10-2-2 | Not received | | |
| 10-3 | Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application | | |
| 10-4 | Date of timely receipt of the required corrections under PCT Article 11(2) | | |
| 10-5 | International Searching Authority | ISA/EP | |
| 10-6 | Transmittal of search copy delayed until search fee is paid | | |

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| 11-1 | Date of receipt of the record copy by the International Bureau | |
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